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L2: Entry 27 of 46

File: USPT

Oct 4, 1988

DOCUMENT-IDENTIFIER: US 4775966 A

TITLE: Optical information recording apparatus with eccentricity correction circuit

Detailed Description Text (34):

In the ordinary recording/reproducing state of the rotary disc after the optimum eccentricity correction signal has been obtained as described above, both the switches 3 and 15 are turned on by the system control circuit 44 and the microcomputer 8, and the eccentricity correction signal delivered from the D/A converter 14 and the tracking control signal delivered from the phase compensation circuit 2 are added by the adder 4, the sum being applied to the drive circuit 5 so as to drive the actuator 20.

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L2: Entry 24 of 46

File: USPT

Jan 15, 1991

DOCUMENT-IDENTIFIER: US 4985882 A

**\*\* See image for Certificate of Correction \*\***

TITLE: Track access control system for disk system, having eccentricity correction means

Brief Summary Text (14):

The track access control system also includes an eccentricity compensation unit for receiving the analog reproduction eccentricity wave signal from the filter and adding the received reproduction eccentricity wave signal to the track error signal so that the eccentricity is compensated.

Brief Summary Text (26):

The eccentricity correction unit includes an eccentricity detecting unit for detecting said eccentricity data in response to a deviation of said track for at least a half rotation of said disk and an eccentricity wave signal storage unit having a memory. Also included is an address generation circuit, a filter connected to an output of the memory, and a comparator having an input connected to an output of said filter, another input thereof connected to the eccentricity detecting unit to receive said eccentricity data, and an output thereof connected to an input of said memory. The address generation circuit generates an address signal for the memory in response to the rotation of the disk, the filter reproduces an analog reproduction eccentricity wave signal in response to data stored in said memory, the comparator comparing the analog reproduction eccentricity wave signal with the received eccentricity and outputting digital data indicating a polygonal line shaped sinusoidal eccentricity signal. An eccentricity compensation unit is used for receiving the analog reproduction eccentricity wave signal from the filter and adding said received reproduction eccentricity wave signal to the track error signal, and a controllable eccentricity detecting unit is used for detecting controllable eccentricity data for at least a half rotation of the disk, the controllable eccentricity data falling in a follow range of the light beams throughout all tracks of the disk.

## CLAIMS:

1. A track access control system for use in a disk storage system including: a rotatable recording disk having a plurality of tracks, on which data is recorded and from which data is read, formed along a rotation direction of the rotatable disk; a data recording and reading head movable in a radial direction across the disk; track actuator means for moving the head in a radial direction of the disk; and a track error sensor for detecting a track error signal in response to a signal read through the head, said control system comprising:

track servo control means, operatively connected to the track error sensor and the track actuator means, for positioning the head at a desired position through the track actuator means in response to the track error signal from the track error sensor; and

eccentricity correction means, operatively connected to the track error sensor, and operatively connected to said track servo control means to cooperate therewith, for detecting an eccentricity of one of the tracks at a first condition, storing said

a memory;

an address generation circuit connected to said memory;

a filter connected to an output of said memory; and

a comparator having a first input connected to an output of said filter, a second input connected to said eccentricity detecting means to receive said eccentricity data, and an output connected to an input of said memory;

said address generation circuit generating an address for said memory in response to a rotation of said disk, said filter producing an analog reproduction eccentricity wave signal in response to data stored in said memory, said comparator comparing said analog reproduction eccentricity wave signal with said received eccentricity and outputting the digital eccentricity data comprising a polygonal line shaped sinusoidal eccentricity signal;

eccentricity compensation means for receiving said analog reproduction eccentricity wave signal from said filter and adding said received reproduction eccentricity wave signal to the track error signal; and

controllable eccentricity detecting means for detecting controllable eccentricity data for at least a half rotation of said disk, said controllable eccentricity data falling in a following range of light beams produced by the head throughout all tracks of said disk.

eccentricity, and compensating said eccentricity of the track together with said track servo control means at a second condition after said first condition, said eccentricity correction means comprising:

eccentricity detecting means for detecting said eccentricity and producing eccentricity data in response to a deviation of the track for at least a half rotation of said disk;

eccentricity wave signal storage means for storing digital eccentricity data and comprising:

a memory;

an address generation circuit operatively connected to said memory;

a filter connected to an output of said memory; and

a comparator having a first input connected to an output of said filter, a second input connected to said eccentricity detecting means to receive said eccentricity data, and an output connected to an input of said memory;

said address generation circuit generating an address for said memory in response to a rotation of said disk, said filter producing an analog reproduction eccentricity wave signal in response to data stored in said memory, said comparator comparing said analog reproduction eccentricity wave signal with said received eccentricity and outputting the digital eccentricity data comprising a polygonal line shaped sinusoidal eccentricity signal; and

eccentricity compensation means for receiving said analog reproduction eccentricity wave signal from said filter and adding said received reproduction eccentricity wave signal to the track error signal compensating said eccentricity.

13. A track access control system for use in a disk storage system including: a rotatable recording disk having a plurality of tracks, on which data is recorded and from which data is read, formed along a rotation direction of the rotatable disk; a data recording and reading head which is movable in a radial direction across the disk; track actuator means for moving the head in a radial direction of the disk; and a track error sensor for detecting a track error signal in response to a signal read through the head, said control system comprising:

track servo control means, operatively connected to the track error sensor and the track actuator means, for positioning the head at a desired position through the track actuator means in response to the track error signal from the track error sensor; and

eccentricity correction means, operatively connected to the track error sensor, and operatively connected to the track error sensor, and operatively connected to said track servo control means to cooperate therewith, for detecting an eccentricity of said tracks at a first condition, storing said eccentricity, and compensating said eccentricity of said track together with said track servo control means at a second condition after said first condition, said eccentricity correction means comprising:

eccentricity detecting means for detecting said eccentricity and producing eccentricity data in response to a deviation of said track for at least half rotation of said disk;

eccentricity wave signal storage means for storing digital eccentricity data and comprising: